

Applications of GIS in water resources management

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In recent years there has been a paradigm shift toward dealing with development issues from an ecosystem planning perspective. An efficient and consistent data management system is essential to facilitate effective and meaningful evaluation of environmental impacts of proposed developments. The Water Resources Division is actively pursuing the implementation of GIS technology to assist in establishing and evaluating spatially oriented ecosystem-based decisions. This undertaking is being accomplished in three overlapping steps: development of a GIS database ranging

from base topographic mapping, geology, hydrology, to environmental and cultural features; development of GIS functionalities to extract information from the database; and integration of GIS with environmental and hydrological models. The presentation will provide information on the progress of the development of the GIS database. The paper will also illustrate the GIS-related activities of the Division by means of several slides related to the calculations of watershed characteristics, land use changes over time, hydrology of Newfoundland, and interpretation of lake-water quality data.